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Climate-friendly food for 10 billion humans in 2050

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In the field of energy, the economic analysis of optimal climate efforts is relatively well established. This is partly because it is easy to calculate CO2 emissions from various forms of energy, simply from the amounts of fossil fuels used. As the fuels are traded globally and are very uniform, it is also relatively easy to obtain the necessary price data for analysis of cost-effective measures.

Over the next decade, the world will need an equally solid global economic analysis of the climate aspects of food. With the report *Creating a Sustainable Food Future* (www.wrr-food.wri.org), the World Resources Institute (WRI) has proposed a global strategy for providing food to a global population of almost 10 billion people by 2050 – while staying within the framework of the Paris Agreement's temperature targets as well as other environmental constraints. In continuation of this work, a research team from WRI has carried out a relatively detailed benchmarking of the climate footprint of dairy and pork produced in various European countries, USA, Brazil, etc. (www.wri.org/publication/comparing-life-cycle-greenhouse-gas-emissions-dairy-pork-systems). This is a challenging exercise because greenhouse gas emissions cannot be measured directly; emissions can only be estimated based on detailed modeling of agricultural production systems.

On this basis, an economic analysis can gradually be built of the possibilities for optimal climate mitigation. Reducing the national Danish CO2e emissions is necessary but insufficient. If global demand is relatively inelastic (but growing with population), it becomes crucial where efficient food production can best take place. This also applies in relation to land used for production of animal feed, which – perhaps surprisingly – turns out to be one of the biggest factors behind the differences in how climate-friendly food systems are across countries.

A better understanding of the global picture is useful for designing Danish and European climate effort in a way that contributes most effectively to achieving the SDG goals in a future world with a significantly larger human population.